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10/629,286	07/29/2003	Patrick D. McCusker	03CR166/KE	5711

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ROCKWELL COLLINS, INC.  
Attention: Kyle Eppele  
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400 Collins Rd. NE  
Cedar Rapids, IA 52498

EXAMINER
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BROADHEAD, BRIAN J

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3661

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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APPLICATION NO./ CONTROL NO.	FILING DATE	FIRST NAMED INVENTOR / PATENT IN REEXAMINATION	ATTORNEY DOCKET NO.
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10 629 286

EXAMINER

ART UNIT

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20070419

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## Commissioner for Patents

Responsive to the order returning the undocketed appeal to the examiner on April 12, 2007, the examiner's answer mailed April 20, 2006 is withdrawn and a corrected examiner's answer is attached. The changes made were to include in the Evidence relied upon index, the patent documents cited in the grounds of rejection as follows:

## (8) Evidence Relied Upon

US 2004/0068372	Ybarra et al.	04-2004
6,058,147	Myers	07-2000
US 2004/0024500	Campbell	02-2004

Appellant may file another reply brief in compliance with 37 CFR 41.41 within two months of the date of mailing of this supplemental examiner's answer. Extensions of time under 37 CFR 1.136(a) are not applicable to this two month time period. See 37 CFR 41.43(b)-(c).

THOMAS BLACK  
SUPERVISORY PATENT EXAMINER



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/629,286  
Filing Date: July 29, 2003  
Appellant(s): MCCUSKER ET AL.

**MAILED**

**APR 25 2007**

**GROUP 3600**

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Nathan O. Jensen  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed February 9, 2006, appealing from the Office action mailed July 15, 2005.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

US 2004/0068372	Ybarra et al.	04-2004
6,058,147	Myers	07-2000

US 2004/0024500

Campbell

02-2004

Federal Aviation Administration, "AC 25-23- Airworthiness Criteria for the Installation Approval of a Terrain Awareness and Warning System(TAWS) for Part 25 Airplanes", (May 22, 2000)

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 1 through 3, 9 through 15, 17, 18, and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by Ybarra et al., 2004/0068372.

As per claims 1 through 3, 9 through 15, 17, 18, and 19, Ybarra et al. disclose predicting an intended path of the aircraft, identifying a potential hazard to the aircraft along the intended path in paragraph 18; determining a distance from the potential hazard that the aircraft is required to maintain in table 34; determining an ability of the aircraft to maneuver to avoid the identified hazard and to remain further from the identified hazard than the distance in paragraph 18; determining a probability that the aircraft will not maintain the distance from the identified hazards and alerting a pilot of the aircraft if the probability is greater than a predetermined level in paragraph 33; receiving inputs representative of a weather event proximal the aircraft and receiving inputs representative of an aircraft proximal the aircraft in paragraph 18; identifying a potential hazard further includes accessing information representative of elevations of terrain proximal the aircraft in paragraph 18; determining the ability of the aircraft to maneuver further comprises analyzing inputs from a plurality of aircraft sensors to ascertain a current configuration of the aircraft in paragraph 9, 18, and 41; the aircraft

sensors measure at least one of an aircraft flap position, an aircraft slat position, a landing gear position, a throttle position, and an engine-out status for any engine of the aircraft in paragraph 41; in paragraph 9; determining the ability of the aircraft to maneuver further comprises determining the current operating state of the aircraft in paragraph 9; predicting an intended path of the aircraft includes obtaining input from an onboard avionics navigation system in paragraph 21; alerting the pilot includes highlighting at least one of a graphical representation of the potential hazard, and at least part of a graphical representation of the intended path of the aircraft in paragraph 25 and 17, the conventional systems will highlight hazards according to the government specifications mentioned; and accessing information relative to areas of restricted airspace proximal the aircraft; accessing separation information that provides a distance by which the aircraft must be separated from the restricted airspace; determining a possibility that the aircraft, traveling along the intended path, will be less than the distance from the restricted airspace, and advising a pilot of the aircraft if the possibility is above a predetermined threshold in paragraph 18. Restricted airspace is a traffic condition.

As per claim 19, the invention of Ybarra et al. is capable of providing a plurality of warnings of two weather events, aircraft traffic and terrain. This is functional language.

Claims 4, 5, 6, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ybarra et al., 2004/0068372, in view of Myers, 6085147.

Ybarra et al. disclose the limitations as set forth above. Ybarra et al. do not disclose the performance characteristics include aircraft ceiling and aircraft range.

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Myers teaches using the performance characteristics of aircraft ceiling and aircraft range on lines 38-40, on column 5. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the range and ceiling of Myers because such modification would optimize the cost of operation of the vehicle (lines 8-10, on column 1 of Myers) when determining whether or not to provide a warning.

Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ybarra et al., 2004/0068372, in view of Campbell, 2004/0024500.

Ybarra et al. disclose the limitations as set forth above. Ybarra et al. do not disclose determining the current operating state includes determining at least one of an engine temperature, and an RPM of an engine of the aircraft. Campbell teaches determining the current operating state includes determining at least one of an engine temperature, and an RPM of an engine of the aircraft in paragraph 27. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the measurements of Campbell in the invention of Ybarra et al. because Ybarra et al. discloses using available thrust as a performance measure in paragraph 46, and in paragraph 41, discloses changing base values based on sensor readings. Campbell teaches that the sensor reading used to determine available thrust include engine temperature and RPM. Using these specific measurements is a design choice.

Claim 8 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ybarra et al., 2004/0068372, in view of Myers, 6085147, as applied to claims 4 and 7 above, and further in view of Campbell, 2004/0024500.

Ybarra et al. and Myers disclose the limitations as set forth above. Ybarra et al. and Myers do not disclose determining the current operating state includes determining at least two of an engine pressure ratio for any engine of the aircraft, engine temperature, and an RPM of an engine of the aircraft. Campbell teaches determining the current operating state includes determining at least two of an engine pressure ratio for any engine of the aircraft, engine temperature, and an RPM of an engine of the aircraft in paragraph 27. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the measurements of Campbell in the invention of Ybarra et al. and Myers because Ybarra et al. and Myers disclose using available thrust as a performance measure in paragraph 46, and in paragraph 41, discloses changing base values based on sensor readings. Campbell teaches that the sensor reading used to determine available thrust include engine temperature and RPM. Using these specific measurements is a design choice.

#### **(10) Response to Argument**

The Appellant's arguments with respect to claims 1 and 11 are the same and will be treated together. Appellant argues that Ybarra fails to disclose "alerting a pilot of the aircraft if the probability that the aircraft will not maintain the distance from the identified hazards *is greater than a predetermined level*." Appellant has not addressed the remarks in both the final office action of July 15, 2005, and the advisory action of November 17, 2005, that set forth the position that risk is another term for probability. According to the *Merriam Webster Collegiate Dictionary*, tenth edition, 1997, page 1011, risk is defined as "the chance of loss or the perils to the subject matter of an insurance



contract; also : the degree of **probability** of such a loss". Ybarra, in paragraph 33, clearly discloses alerting the pilot based on risk (probability) assessments. This assessment must compare the current level of risk to an acceptable level of risk. This acceptable level would correspond to Appellant's "predetermined level". In paragraph 34, Ybarra, discloses that the working value of the aircraft is adjusted based on actual real world conditions by taking into account adjustment values. For example, an adjustment may be made if the flight crew is inexperienced. This adjustment would cause the risk of collision to increase compared to the same situation with a more experienced flight crew. If the risk (probability) increased enough to reach a threshold, or unacceptable level, then an alert or advisory would be issued to the pilot. Appellant seems to rely on the fact that Ybarra does not explicitly use the term "probability". But Ybarra clearly reads on the claims when risk is interpreted properly as the equivalent of probability.

The second argument deals with whether or not the cited reference discloses "accessing information relative to areas of restricted airspace proximal to the aircraft", as in Appellant's claim 17. The cited section of Ybarra (paragraph 24) discloses "the airport data generally includes terrain data associated with an airport and descriptions of approaches and runways into the airports the host aircraft is expected to access to during the mission." The aircraft would only be given clearance to one approach at a time and the other approaches would be restricted. Furthermore, in paragraph 33 Ybarra discloses that the location of adverse weather is given so that it may be avoided. The space occupied by the weather can be viewed as restricted airspace. The space

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occupied by other aircraft can also be viewed as restricted airspace. Finally, in Table 4, on page 7 of Ybarra it is disclosed that a “minimum terrain clearance distance” is given. This represents a section of airspace above the terrain that is restricted and not to be occupied by the aircraft. Ybarra is going to reference this value to determine and issue collision alerts.

The argument with respect to claim 18 addresses the claim limitation of “a visual notification apparatus configured to highlight at least one of a graphical representation of a potential hazard and at least part of a graphical representation of the flight path of the aircraft.” Paragraph 25 of Ybarra discloses providing advice to the display. What was pointed out in the response to arguments in the final office action of July 15, 2005, is that standards disclosed in paragraph 17 read on the claimed limitations. In paragraph 17, Ybarra discloses “the visual advice may be presented by symbols or colors or a graphic presentation for display to a flight crew member. Such a system may include any conventional system modified as described therein. Conventional systems include, for example, systems as specified in DO-185A, as to traffic collision avoidance, and as specified in Advisory Circular AC 25-18, **AC 25-23**, or TSO-C151a...” These are all standards, mostly by the FAA, that should be known to one of ordinary skill in the art. AC 25-23 describes on pages 16-17, how a terrain display should display terrain alerts and preferably use color to highlight the threat. This limitation is so well known in the art that it would almost be considered standard equipment on any newly built large aircraft.

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The remaining arguments by Appellant rely on the arguments addressed above and are not convincing for the same reasons.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Brian J. Broadhead 

Conferees:

Thomas G. Black 

Yonel Beaulieu 